

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

- 1-3. *(Canceled)*
4. *(Previously Presented)* The method of claim 30, wherein said extruder is a twin screw extruder.
5. *(Currently Amended)* The method of claim 30, wherein the temperature of the polymer mixture in the extrusion die is achieved by heating the extrusion die externally.
6. *(Currently Amended)* The method of claim 30, wherein the temperature of the mixture-polymer in the extrusion die is achieved by the induction of heat from the interior of the extrusion die.
7. *(Canceled)*
8. *(Currently Amended)* The method of claim 30, wherein the temperature (°C) of the polymer mixture in the extrusion die is not higher than 60% above the crosslinking temperature (°C) of the polymer.
9. *(Currently Amended)* The method of claim 30, wherein the temperature (°C) of the polymer mixture before entering the extrusion die is not higher than 30% above the crystallite melting point (°C) of the polymer.
10. *(Currently Amended)* The method of claim 30, wherein the crosslinking temperature (°C) of the polymer is approximately 30% above the crystallite melting point (°C) of the polymer.
11. *(Currently Amended)* The method of claim 30, wherein the crystallite melting point

of the polymer is approximately 125-140° C.

12. **(Currently Amended)** The method of claim 30, wherein the crosslinking temperature of the polymer is approximately 165-185° C.

13. **(Canceled)**

14. **(Canceled)**

15. **(Previously Presented)** The method of claim 30, wherein the tube is maintained at a temperature above the crosslinking temperature after discharge from the extrusion die.

16. **(Previously Presented)** The method of claim 30, wherein the tube is cooled after crosslinking.

17-29. **(Canceled)**

30. **(Currently Amended)** A method for extruding a peroxide crosslinked polymer tube, comprising:

supplying a mixture to an extruder, the mixture comprising: a crosslinkable polymer, a crosslinking agent, and a stabilizing agent, wherein the ~~mixture~~ polymer has a crystallite melting point and a crosslinking temperature;

heating the mixture in the extruder with an external heating unit to a temperature above the crystallite melting point but below the crosslinking temperature;

controlling the temperature of the mixture in the extruder with the external heating unit and an internal cooling unit;

continuously feeding the mixture from the extruder to an extrusion die, wherein a melting pressure before entry to the extrusion die is approximately 700-1500 bar;

heating the mixture in the extrusion die above the crosslinking temperature to effect at least a partial crosslinking of the ~~mixture~~ polymer in the extrusion die, wherein the temperature

(°C) of the mixture in the extrusion die is at least 15% above the crosslinking temperature (°C); and
discharging the mixture from the extrusion die, wherein the degree of crosslinking of
the ~~mixture~~ polymer on discharge from the extrusion die is above 60%.

31. *(New)* The method of claim 30, wherein the crosslinking agent comprises organic peroxide.

32. *(New)* The method of claim 30, wherein the melting pressure before entry to the
extrusion die is approximately 1200 bar.